

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

IN RE PHARMACEUTICAL INDUSTRY)	
AVERAGE WHOLESALE PRICE)	MDL No. 1456
LITIGATION)	
)	CIVIL ACTION: 01-CV-12257-PBS
)	
THIS DOCUMENT RELATES TO)	Judge Patti B. Saris
01-CV-12257-PBS AND 01-CV-339)	
)	Chief Magistrate Judge Marianne B. Bowler
)	
)	[FILED UNDER SEAL PURSUANT TO
)	COURT ORDER]
)	

DECLARATION OF DR. RICHARD G. FRANK
IN REBUTTAL OF DR. HALBERT L. WHITE

**Declaration of Dr. Richard G. Frank
in Rebuttal of Dr. Halbert L. White**

**In the Matter of the Pharmaceutical Industry
Average Wholesale Price Litigation**

I. Qualifications

1. I am the Margaret T. Morris Professor of Health Economics at the Harvard University Medical School. I teach at Harvard College, the John F. Kennedy School of Government and in the university-wide doctoral program in health policy. I am also a Research Associate at the National Bureau of Economic Research. Since 1981, I have conducted research and taught in the area of health economics. I have lectured and published papers on the economics and regulation of the pharmaceutical industry as well as other facets of the health sector. I am a Co-Editor of the *Journal of Health Economics*, and I serve on the editorial boards of *Health Affairs* and the *Journal of Mental Health Policy and Economics*. A copy of my curriculum vitae is attached as Attachment A.

2. Some of my research activities address the economics of the pharmaceutical industry. I have analyzed pricing practices in the pharmaceutical industry in a study sponsored by the U.S. Congress' Office of Technology Assessment. The paper based on that research won the Georgescu-Roegen Award from the Southern Economic Association for the Best Article in the *Southern Economic Journal* in 1992-1993. I have conducted statistical studies of price competition between brand name and generic prescription drugs. I have conducted empirical research on the impacts of direct to consumer advertising of prescription drugs and the impact of three-tiered formularies.

3. I was elected to the Institute of Medicine of the National Academy of Sciences in 1997. I currently serve on the Board of Neuroscience and Behavioral Health of the Institute of Medicine. I have been a consultant to state governments, federal agencies and law firms and have submitted testimony before state and federal courts. I served as an expert on behalf of defendant wholesalers in the *Brand Name Prescription Drug*

Litigation. In that matter I analyzed the role of the wholesalers in determining price differences across different types of buyers. I served as an expert in the *Merck-Medco Managed Care LLC v. Rite Aid Corp et al Litigation* where I analyzed the economics of pharmacy networks.

4. I served as an expert for the Federal Trade Commission in its investigation of the competitive impacts of the agreement between Hoechst Marion Roussel Inc. and Andryx Pharmaceuticals Inc. concerning patent litigation regarding generic Cardizem. I have also served as an expert on behalf of class plaintiffs in the matter of *St. Charles Hospital and Rehabilitation Center v. Mylan Laboratories et al*. In that assignment I considered whether a classwide analysis was the appropriate method of assessing impact and damages. I have served as an expert to plaintiffs in the *Terazosin Hydrochloride Antitrust Litigation*. In that matter my assignment was to examine liability issues of market definition and impact related to an agreement between Abbott Laboratories and generic manufacturers. I also served as an expert to plaintiffs in the *Microcrystalline Cellulose Antitrust Litigation*, where I considered whether classwide analysis was the appropriate method for assessing impact and damages. Finally, I served as an expert to plaintiffs in the *Remeron Antitrust Litigation*. There I analyzed whether a classwide approach to assessing impact and damages was appropriate.

5. My curriculum vitae is attached in Attachment A. My rate of compensation in this matter is \$400 per hour.

II. Assignment and Summary of Findings

6. I have been asked by Plaintiffs' counsel to review Professor White's Report and to comment on his analysis of pharmaceutical markets. I have focused on his conclusion that Dr. Hartman's assumption about the ability of class members to adjust to changing price-cost spreads "is inconsistent with the fundamental tenets of economic behavior".¹

¹ Declaration of Halbert L. White ¶ 21 p. 6.

After reviewing relevant literature in health policy and health economics and considering the institutions of the pharmaceutical industry, I conclude that Dr. White's economic reasoning is devoid of content specific to the operation of pharmaceutical markets. His statement implies that there is a universal truth to how economic agents incorporate and act upon information. A basic understanding of how prescription drug markets operate at the very least raises important questions about the availability of information and the degree to which economic agents respond to such information. Dr. White seems to be so unfamiliar with pharmaceutical markets that his application of economic analysis to this sector is likely to produce results that are unreliable and incorrect.

III. Pharmaceutical Markets and Responses to Information on Pricing Spreads

7. Dr. White suggests that health plans and other payors for health care services have strong incentives to learn about pricing spreads and negotiate better prices for themselves as a result.² There have been numerous studies of the availability and sources of information upon which health plans make choices. The General Accounting Office (GAO) conducted case studies of three health plans that participate in the Federal Employees Health Benefit Program.³ In that report the GAO found plans were estimating substantial savings from using Pharmacy Benefit Managers (PBMs) to manage prescription drug benefits. The plan relied only on PBM produced data to make those judgments. The judgments about savings were made by comparing the prices that the health plans believed they would have paid absent the PBM, versus what the actually paid. Thus no independent data appeared to be used to make assessment of additional spread between reported prices and transaction prices.

8. The Office of the Inspector General of the U.S. Department of Health and Human Services also conducted a study of HMO contracts with PBMs in the context of plans

² *Ibid.*

³ U.S. General Accounting Office (1997), *Pharmacy Benefit Managers: FEHBP plans satisfied with savings and services but retail pharmacies have concerns*, GAO/HEHS-97-47, Washington D.C.: USGPO.

serving Medicare and Medicaid beneficiaries.⁴ The OIG concluded that HMOs relied primarily on PBM supplied data and reports for assessing the performance of PBMs. In fact the OIG report suggested that obtaining data from PBMs in a timely manner that would allow for independent assessments would potentially result in better assessments of PBM performance.

9. Thus while in theory one might expect HMOs to have strong financial incentives to obtain information on the performance of PBMs through external assessment like independent audits as is common in many businesses this appeared not to be the prevalent practice in the late 1990s. Dr. White appears to believe that because the incentive is there it will always be pursued efficiently. He seems to be potentially right in theory and likely wrong in fact.

10. What might explain such an unexpected phenomenon that would lead Dr. Hartman to possibly make his “unorthodox assumption”? One recent explanation comes from one of Dr. White’s co-authors, Professor Berndt. In a recent paper that seeks to explain why pharmaceutical spending had been permitted to grow so rapidly during the 1990s.⁵ His explanation is based on an observations made by the economist Alfred Marshall in the 19th century. The idea that Marshall identified was referred to as “the importance of being unimportant”. Marshall argued that if spending on some good or service was a small part of total cost that good or service may be less of a target for cost control efforts than are items representing larger portions of total costs. Berndt takes this idea and applies it to explain why public and private cost control efforts have not focused on prescription drug spending until very recently. He notes: “...until recently prescription drugs costs have not on average been as important as the health care cost shares of hospital and physician services”.⁶ He observes further that as recently as 1998

⁴ U.S. Office of the Inspector General, Department of Health and Human Services (1997), *Experiences of Health Maintenance Organizations with Pharmacy Benefit Management Companies*, Publication No. OEI-01-95-00110, Washington: USGPO.

⁵ Berndt, E.R. (2001), “The U.S. Pharmaceutical Industry: Why Major Growth in Times of Cost Containment,” *Health Affairs* 20 (2): 100-114.

⁶ Berndt, p. 103.

prescription drug costs represented a “relatively unimportant 8 percent” of health spending.⁷ Professor Berndt’s analysis does not prove that HMOs behaved so as to give less attention to prescription drug spending but it does highlight the fact that informed economists observing this complex market can apply economic ideas to form views that Dr. White refers to as unorthodox.

11. For these reasons I conclude that Dr. White’s grasp of the market for prescription drugs is so weak that his judgments about what constitute appropriate and useful applications of economic reasoning to the analysis of this market have little merit.

I declare under penalty of perjury that this Declaration is true and correct.
Executed on December 16, 2004.

/s/ Richard G. Frank

Dr. Richard G. Frank

⁷ Berndt, p. 103.

Attachment A

Curriculum Vitae

Last Updated: 11-17-04

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Date/Place of Birth: April 27, 1952
Boston, MA

EDUCATION

Boston University
Ph.D. in Economics, Awarded January 1982
Dissertation: "Pricing and Location of Physician Services in Mental Health"
(Accepted with Distinction, May 1981).

Bard College
B.A. in Economics, May 1974

Honors: 1979 - Dissertation Award from the Pharmaceutical Manufacturers Association
1979 - Honorable Mention Abt Economic Policy Essay Competition
1980 - Dissertation Support from Foundations Fund for Research in Psychiatry
1986 - New Investigator Research Award, NIMH
1988 - Delta Omega (Public Health Honorary Society)
1993 - Georgescu-Roegen Award (Best Paper in 1992-93) Southern Economic Association
(with David S. Salkever)
1996 - Fellow of the Association for Health Services Research
1997 - Member, Institute of Medicine
1998 - Carl A. Taube Award, American Public Health Association
2001 - Emily Mumford Medal, Columbia University, Department of Psychiatry
2002- John Eisenberg Mentorship Award, National Research Service Awards
2003 - MarketScan Investigator Award, Thomson Medstat

CURRENT POSITIONS

Margaret T. Morris Professor of Health Economics Department of Health Care Policy Harvard University Medical School	1999 – Present
Research Associate National Bureau of Economic Research Cambridge, MA/New York, NY	1987 - Present

PAST POSITIONS

Member Substance Abuse and Mental Health Service Administration Advisory Council U.S.D.H.H.S.	1996 - 2000
Professor of Health Economics Department of Health Care Policy Harvard University Medical School	1994 - 1999
Commissioner Health Services Cost Review Commission State of Maryland	1989 - 1994
Deputy Director Center on Organization and Financing of Care for the Severely Mentally Ill	1990 - 1994
Professor Department of Health Policy and Management School of Hygiene and Public Health Johns Hopkins University	1991 - 1994
Staff Member President's Task Force on Health Care Reform	1993
Associate Professor Department of Health Policy and Management School of Hygiene and Public Health Johns Hopkins University	1986 - 1991
Faculty Research Fellow National Bureau of Economic Research Cambridge, MA/New York, NY	1983 - 1987

Assistant Professor Department of Health Policy and Management School of Hygiene and Public Health Johns Hopkins University	1984 - 1986
Assistant Professor of Psychiatry University of Pittsburgh Pittsburgh, PA	1981 - 1984
Senior Fellow/Visiting Assistant Professor of Economics University of Pittsburgh Pittsburgh, PA	1980 - 1981
Economist Division of Biometry and Epidemiology National Institute of Mental Health Rockville, MD	1979 - 1980
Teaching Fellow Department of Economics Boston University Boston, MA	1977 - 1979
Peace Corps Volunteer Republic of Botswana, Africa	1975 - 1976

PUBLICATIONS (REFEREED JOURNALS)

1. Frank RG. "Cost Benefit Analysis in Mental Health: A Review of the Literature," *Administration in Mental Health*, 8(3):161-176, 1981.
2. Frank RG and Welch WP. "The Contracting of State of Mental Hospital Systems," *Journal of Health Politics Policy and Law*, 7(2):676-683, 1982.
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141. Frank R.G., and Hogan, M. "Commentary: Talbott and Financing Policy: Reducing Fragmentation" *Psychiatric Services*, 58(10): 1150-1152, 2004.

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2. Frank RG and Kamlet MS. "Direct Costs and Expenditures of Mental Health Care 1980," In Mental Health U.S., Taube C (Ed.), Washington, DC: USGPO 1985, 95-99.
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52. Frank RG, "Behavioral Economics and Health Economics" in Economic Institutions and Behavioral Economics Diamond P, and Vartiainen H. (Eds.) Princeton: Princeton University Press (In Press)

BOOK REVIEWS

1. Frank RG. "Professionalism and the Public Interest," *Journal of Health Politics Policy and Law* (Book Review), 7(3):746-748, Fall 1982.
2. Frank RG. "Medical Costs, Moral Choices," *Journal of Health Politics Policy and Law* (Book Review), 9(3):529-532, Fall 1984.
3. Frank RG. "Mental Health and National Health Insurance," *Journal of Health Politics Policy and Law* (Book Review), 10(1):195-197, Spring 1985.
4. Frank RG. "Is Prevention Better Than Cure?" *Journal of Economic Literature* (Book Review), 24(4):1851-52, December 1986.

5. Frank RG. "Review Essay, Measuring the Economics of Health," *Journal of Health Politics Policy and Law* (Book Review), 21(3), 1996.

OP ED

1. "Avenging the Health Care Consumer" NPR Marketplace, November 8, 2004.

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1. Frank RG. "Economics and Mental Health Services," *American Psychologist*, 36(6):692-693, 1981.
2. Needleman HL and Frank RG. "Letter on Lead Screening Cost Effectiveness," *New England Journal of Medicine*, 1269-70, November 11, 1982.
3. Frank RG. "Letter on Cost Effectiveness of Clozapine," *Hospital and Community Psychiatry*, 42(1):92, 1991.
4. Frank RG, Koyanagi C, McGuire TG. "Mental Health Parity: The Authors Respond," *Health Affairs*, 16(6):257-258, 1997.
5. Frank RG, Goldman HH and McGuire T. Will Parity in Coverage Result in Better Mental Health Care? *New England Journal of Medicine*, 346:1030, 2002.

MONOGRAPHS

1. Frank RG and McGuire TG. A Review of Demand and Utilization of Specialty Mental Health Services American Psychiatric Association Press, Washington, DC 1984.
2. Frank RG (Guest Editor with Scheffler, R.M.) Special Issue, *Inquiry* 26(2), Summer 1989.
3. Siragelden I, Sorkin A, Frank RG. (Editors) Research on Human Capital and Development, JAI Press, Greenwich, CT 1990.
4. Frank RG and Manning WG. (Editors) Economics and Mental Health, Johns Hopkins University Press, Baltimore, MD 1992.
5. Frank RG, McGuire TG and Goldman HH. Buying in the Public Interest, Bazelon Center for Mental Health Law, Washington, DC 1996.
6. Edmunds M, Frank RG, Hogan M, et al. Managing Managed Care: Quality Improvement in Behavioral Health, Institute of Medicine, National Academy Press, Washington, DC, 1996.

7. Frank RG, Morlock LL. Managing Fragmented Public Mental Health Services, Milbank Memorial Fund: New York, NY, 1997.
8. Frank RG, Berndt ER, Donohue J, Epstein AE, Rosenthal M, Trends in Direct-to-Consumer Advertising of Prescription Drugs, Kaiser Family Foundation, Menlo Park, CA February 2002.

GRANTS RECEIVED (PI or Co-PI Only)

- 1979 *The Impact of Licensing Laws and Insurance Reimbursement Provisions on Mental Health Delivery*, Co-Principal Investigator with TG. McGuire and A. Klevroick
Source: Foundations' Fund for Research in Psychiatry
- 1981 *A Study of Production and Cost in Mental Hospitals Using the Economics of the Multiproduct Firm*
Source: National Institute of Mental Health
- 1982 *A Critical Review of the Literature of Utilization and Demand for Mental Health Services*
Source: American Psychiatric Association
- 1983 *HMO Costs: A National Sample*
Co-Principal Investigator with WP. Welch
Source: NCHSR
- 1983 *Health Econometric Methods for Multimedia Pollutants*
Co-Principal Investigator with HL. Needleman, M. Grossman, D. Coate, F. Goldman, M. Kamlet
Source: Environmental Protection Agency
- 1983 *The Economic Consequences of Low Level Lead Exposure*
Co-Principal Investigator with HL. Needleman
Source: Environmental Protection Agency
- 1984 *Medicaid Financing Policy*
Biomedical Science Research Grant
Source: NIH/Johns Hopkins University
- 1986 *Medicaid Financing of Psychiatric Patients*
Co-Principal Investigator with JR. Lave
Source: NIMH
- 1986 New Investigator Research Award
Source: National Institute of Mental Health
- 1986 *Financing Prenatal Care for the Poor and Uninsured*
Principal Investigator with D. Strobino and D. Salkever
- 1986 *Hospital Services for the Poor and Uninsured*
Co-Principal Investigator with D. Salkever, Principal Investigator

Source: NCHSR

- 1987 *Assistant Director Center for Organization and Financing of the SMI*
Co-Investigator with D. Steinwachs, Principal Investigator
Source: NIMH

- 1988 *First Research Award*
Source: National Institute of Mental Health

- 1989 *A Randomized Evaluation of COSTAR Source*
Principal Investigator with W. Breakey
Source: Kaiser Family Foundation

- 1990 *The Role of Nonprofit Providers: Policy Impacts*
Co-Principal Investigator with D. Salkever, Principal Investigator
Source: NIAAA

- 1991 *Public Financing Structures in Mental Health*
Source: Robert Wood Johnson Foundation

- 1992 *State Mental Health Policy Studies*
Co-Principal Investigator with TG. McGuire, Principal Investigator
Source: NIMH

- 1992 *Schizophrenia PORT*
Task Leader & Co-Principal Investigator with T. Lehman, Principal Investigator
Source: AHCPR

- 1993 *Market for Residential and Day Treatment*
Source: NIMH

- 1994 *Reforming Mental Health/Substance Abuse Care*
Source: Robert Wood Johnson Foundation

- 1994 *Risk Adjustment for Mental Health and Substance Abuse*
Source: HCFA

- 1995 *Brandeis-Harvard University Center on Managed Care and Drug Abuse*
Co-Principal Investigator
Source: NIDA

- 1995 *Sloan-Harvard Center on Managed Care*
Deputy Director
Source: Sloan Foundation

- 1997 *Measuring Systems Cost Effectiveness for Depression*
Principal Investigator
Source: MacArthur Foundation

- 1997 *Management Incentives and Therapeutic Choice in Behavioral Health Care*
Principal Investigator
Source: Lilly
- 1998 *Organizational Factors and Financial Incentive within Physician Groups*
Co-Principal Investigator
Source: California HealthCare Foundation
- 1999 *Analysis of the Department of Veterans Affairs National Formulary*
Principal Investigator
Source: IOM
- 2000 *Price Index for Mental Health Treatments*
Principal Investigator
Source: NIMH
- 2000 *Primary Care Treatment of Depression*
Principal Investigator
Source: Robert Wood Johnson Foundation
- 2001 *Direct to Consumer Advertising of Prescription Drugs*
Principal Investigator
Source: Kaiser Family Foundation
- 2001 *Evaluation of Three Tiered Formularies*
Principal Investigator
Source: Robert Wood Johnson Foundation
- 2002 *An Analysis of Prescription Drug discount Cards*
Principal Investigator
Source: Kaiser Family Foundation
- 2003 *Tracking Performance in Mental Health Policy*
Co-Principal Investigator (with Sherry Glied)
Source: MacArthur Foundation
- 2004 *Economic Impacts of New Drugs*
Principal Investigator
Source: NIMH
- 2004 *Social Insurance and Mental Health*
Principal Investigator
Source: MacArthur Foundation

EDITORIAL ACTIVITIES

Co-Editor, Journal of Health Economics
Editorial Board, Health Services Research (1997-2003)
Editorial Board, Journal of Mental Health Policy and Economics
Editorial Board, Health Affairs
Column Editor, Harvard Review of Psychiatry
Contributing Editor, Administration and Policy in Mental Health
Referee, Alcoholism: Clinical and Experimental Research
Referee, American Economic Review
Referee, American Journal of Epidemiology
Referee, American Journal of Psychiatry
Referee, American Journal of Public Health
Referee, Cambridge University Press
Referee, Canadian Journal of Economics
Referee, Duke University Press
Referee, Economic Inquiry
Referee, Family Planning Perspectives
Referee, Health Policy Quarterly
Referee, Health Services Research
Referee, Hospital and Community Psychiatry
Referee, Inquiry
Referee, JAMA
Referee, Johns Hopkins Press
Referee, Journal of Behavioral Toxicology
Referee, Journal of Health Policy
Referee, Journal of Health Politics, Policy and Law
Referee, Journal of Human Resources
Referee, Journal of the American Statistical Association
Referee, Medical Care
Referee, Millbank Memorial Fund Quarterly
Referee, Psychological Bulletin
Referee, Public Finance Quarterly
Referee, Rand Journal of Economics
Referee, Review of Economics and Statistics
Referee, Social Science and Medicine
Referee, Southern Economic Journal

CONSULTATIONS AND SERVICE

Co-Chair: Fourth and Fifth Biennial NIMH Conferences on the Economics of Mental Health

Co-Chair: State of Maryland, Mental Health Mandate Review Panel, 1990 - 91

Member: NIMH Panel on Services Research Priorities for the Severely Mentally Ill

Member: American Psychiatric Association, Committee on the Future of Financing of Mental Health Services

Member: Governor's Committee on the Uninsured, 1988 - 91

Member: Technical Advisory Panel, RWJ/HCFO Initiative, 1988 - 92

Member: Executive Committee, Health Economics Committee APHA, Medical Care Section, 1990 - 92

Member: OTA Panel on Defensive Medicine, 1992 - 93

Member: Advisory Panel, Southeastern Rural Mental Health Research Center, 1993 - 1995

Member: NIAAA Panel on Effectiveness Research, 1994 - 96

Member: Institute of Medicine, Committee on Accreditation of MBHC, 1996

Member: Board on Neuroscience and Behavioral Health, Institute of Medicine, 1998 - Present

Contract Reviewer: National Institute of Mental Health

Contract Reviewer: HCFA

Reviewer: USGAO

Grant Review Consultant: National Institute of Mental Health

Member Interventions IRG: NIMH 1999-present

Consultant: Veterans Administration: Health Services Research Grants Program

Consultant: Carter Center - Emory University

Consultant: American Psychiatric Association

Consultant: American Psychological Association

Consultant: State of Massachusetts Medicaid Program

Consultant: State of Ohio Department of Mental Health

Consultant: City of New York Office of Mental Health

TEACHING

Courses Taught:

Microeconomic Models in Public Health Economics

Empirical Basis of Mental Health Policy

Intermediate Microeconomic Theory

Health Economics

Public Finance

Mathematical Methods in Public Health Economics
Introduction to Health Care Policy

Co-Director, Mental Health Policy Training Program (Harvard), 1994 - Present

Co-Director OR/Economics and Mental Health Training Program (Johns Hopkins), 1986-1990

Principal Investigator of Economics and Mental Health Training Program (Johns Hopkins), 1991-1994

Director, MHS Program in Health Finance and Management (Johns Hopkins), 1985-1987

ACADEMIC RESPONSIBILITIES

Committee on Higher Degrees in Health Policy
University Benefits Committee
Standing Committee on Conflict of Interest

SELECTED PRESENTATIONS

Seminars and Invited Lectureships

Production Functions for Inpatient Mental Health Care (World Congress on Health Economics),
September 1980 with L. Kessler, Leyden, Holland.

The Shrinking of State Mental Hospital Systems (Public Choice Society), March 1981 with W. P.
Welch, New Orleans, LA.

Pricing and Location of Physician Services in Mental Health (Atlantic Economic Association), August
1981, London, England.

Multi Product Production and Cost Function for Mental Hospitals (American Public Health
Association), November 1982 with W. P. Welch, Montreal, Canada.

Mental Health, Social Costs and Primary Prevention (Invited Paper, World Federation for Mental
Health), July 1983, Washington, DC.

Demand and Utilization of Mental Health Services: A Review of the Evidence (American Public Health
Association), November 1983, Dallas, TX.

Keynote Speaker (Annual Meeting Pennsylvania Psychiatric Society), October 1984.

The Effect of Benefit Design on the Length of Stay of Medicaid Psychiatric Patients (NIMH Conference
on the Economics of Mental Health), October 1984 with J.R. Lave, Berkeley, CA.

Sorting Out the Competitive Effects of HMOs (American Economic Association Meetings), December
1984 with W.P. Welch, Dallas, TX.

Evaluating the Costs of Chronic Mental Disabilities (Conference on the Economics of Disability), April 1985 with H.H. Goldman, Washington, DC.

Keynote Address (New Hampshire State Legislature Conference on Mandated Mental Health Insurance Benefits), January 1986, Concord, NH.

The Impact of PPS on Psychiatric Patients Treated in Scatterbeds (Conference on the Economics of Mental Health), July 1986, Andover, MA.

Economic Rents Derived from Hospital Privileges in the Market for Podiatric Services (MIT/Harvard Health Economics Seminar), April 1987, Cambridge, MA.

Regulatory Responses to Information Deficiency in the Market for Mental Health Services (Invited, Paper Conference on the Future of Mental Health Services).

Provider Choice for the Treatment of Mental Disorder: The Impact of Health and Mental Health Status (Association for Health Services Research), June 1987.

A Review of Research on PPS (Presentation to NIMH Review Panel on Prospective Payment Research), June 1987.

Economic Aspects of Investments in Prevention of Mental Disorders in Children and Adolescents (NIMH Conference on Financing of Mental Health Services for Children and Adolescents), February 1988.

Provider Response to Payment Methods for Psychiatric Patients (Rutgers University, Center on Organization and Financing of Care for the SMI), April 1989.

Pure Versus Impure Altruism in the Non-Profit Firm's Supply of Charity Care (RAND Conference on Health Economics), March 1990.

Pricing, Patent Loss and the Market for Pharmaceuticals (Conference on Government Policies and Pharmaceutical R&D Policy: Sponsored by OTA and UC-Santa Barbara) September 1990 with David Salkever.

Financing Structures in the RWJ/HUD Program for the Chronically Mentally Ill (APHA Annual Meeting), October 1990, New York, NY.

The Health Sector (Conference on Distributional Impacts of the Nonprofit Sector, Duke University), November 1990, Durham, NC.

Government, Markets and Madness: Public Financing of Mental Health Care (Dean's Lecture, Johns Hopkins University) December 1991, Baltimore, MD.

All-Payer Price Setting in Maryland: Confessions of a Skeptical Regulator (Harvard Medical School), Spring 1992, Boston, MA.

A Model Mental Health Insurance Plan (Annual Conference of NAMI), August 1992, Washington, DC.

Public Financing of Mental Health Care in a Multi-level, Multi-agency Environment (NATO Advanced Research Workshop), September 1993, II Ciocco, Italy.

The Uninsured and Mental Health Coverage: Implications for Health Reform (7th Biennial Conference on the Economics of Mental Health), September 1994.

Economics and the New Market for Mental Health Care (Plenary Address to NIMH Conference on Services Research), 1995

Brand Name Pricing of Drugs in Response to Generic Entry (2nd Biennial Conference on I-O and Health), September 1995, Boston, MA.

Key Note Address (12th Annual Rosalynn Carter Symposium on Mental Health Policy), November 1996, Atlanta, GA.

Constructing Quality-Adjusted Producer and Consumer Price Indexes for the Treatment of Acute Phase Depression: An Exploratory Analysis (NBER Summer Institute), July 1997, Cambridge, MA.

Price Indexes for Depression (University of Pittsburgh - Carnegie Mellon University Applied Microeconomics Workshop), March 1998, Pittsburgh, PA.

Expenditures, Productivity, and Cost Effectiveness (Carl A. Taube Award Address, APHA), November 1998, Washington, DC.

Parity for Mental Health (American Enterprise Institute), December 1999, Washington, DC.

Economic Issues and Parity Within the FEHBP (RWJF/OPM Conference on Parity), June 2000, Washington, DC.

Price Indexes for Depression (Department of Economics, Columbia University), December 2000, New York, NY.

The Economics of Direct to Consumer Advertising of Prescription Drugs (ASPE Conference on DTCA), June 2001

Measuring Productivity in Treatment of Depression (Grand Rounds Department of Psychiatry, University of Connecticut) May 2002.

Invited Lecture: An Assessment of Managed Behavioral Health Care (American Psychiatric Association Fall Meeting) October 2002.

Measuring Value in Mental Health (Grand Rounds, Department of Psychiatry University of Maryland) May 2003.

The Economics of Direct to Consumer Advertising of Prescription Drugs: Lessons from the American Experience (Graduation Lecture, Program in Health Economics and Management University of Lausanne, Switzerland) May 2003.

A Price Index for Treatment of Schizophrenia Interpretation (Health Economics Association San Francisco) June 2003.

Social Costs of Addictive Disorder and Economic Benefits from Treatment (Invited Lecture, International Council on Alcohol and Addicts) October 2003, Toronto, Canada.

Behavioral Economics and Health Economics (50th Anniversary Conference of the Yro Jahnsson Foundation) Helsinki Finland, June 2004.

Parity in Private Health Insurance for Mental Health Care (Fredric G. Corneel Lecture) McLean Hospital, November 2004.

LEGISLATIVE TESTIMONY

New York State Assembly Bill A65 09: "Economic Issues Surrounding the Recognition of Psychologists Under Worker's Compensation," Prepared supporting material for New York State Assembly Bill (May 1981).

Pennsylvania H.B. 665: "Mandated Availability of Coverage for Mental Health Services in Private Insurance: Some Economic Issues," Testimony Before Pennsylvania House of Representatives Committee on Insurance (December 1981).

Pennsylvania H.B. 1132: Mandated Coverage of Alcohol Drug Abuse and Mental Health Services," Testimony Before House Committee on Insurance (August 1983).

Virginia Legislature: "Mandated Mental Health Benefits," Prepared supporting material for Virginia Legislature (Winter 1989 and Fall 1990).

"Economic Issues and the Provision of Child Mental Health Services," Testimony Presented at National Hearing on Mental Health in America, Los Angeles, CA (October 1990).

Virginia Legislature: "Mandated Mental Health Benefits: Flexibility," Testimony Before Virginia Legislature (July 1992).

Congressional Briefing for House Mental Health Study Group, U.S. House of Representatives (October 1993).

Senate Committee on Labor and Human Resources, Hearings on Mental Health and Health Reform (November 8, 1993).

Senate Committee on Labor and Human Resources, Hearings on Parity for Substance Abuse Coverage, (July 28, 1998).

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Economic Association
Association for Health Services Research
American Public Health Association
International Health Economics Association